

## Sequence Listing

<110> APROGEN INC.

<120> HUMANIZED ANTIBODY AND PROCESS FOR PREPARING SAME

<130> PCA30215/APG

<150> KR10-2002-0015708

<151> 2002-03-22

<160> 38

<170> KopatentIn 1.71

<210> 1

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> HEAVY CHAIN of HZV11

<400> 1	60
caggtccagc tggcgcagtc tggagctgaa gtgaagaagc ctggggcctc agtgaaggtt	
tcctgcaaag ctctctggcta caccttcacc agtgcttgaa tgaactgggt gcgacaggcc	120
cctggacagg gtcttgagtg gatggacgg atttatccta gtggtggaag cactagctac	180
gcacagaagt tccagggcag agtcacaatg actgcagaca aatccacgag cacagtctac	240
atggagctca gcagcctgag atctgaggac acggcggtgt attactgtgc aagagagtac	300
cggttgcccc gttggggcca aggaactctg gtcactgtct ctca	345

<210> 2

<211> 115

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; HEAVY CHAIN of HZVII

<400> 2  
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Ala Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Ala  
20 25 30

Trp Met Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Arg Ile Tyr Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser Thr Val Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Tyr Arg Val Ala Arg Trp Gly Gln Gly Thr Leu Val Thr  
100 105 110

Val Ser Ala  
115

&lt;210&gt; 3

&lt;211&gt; 336

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; LIGHT CHAIN of HZVII

<400> 3  
gatatcgtga tgacccaaac tccactttct ttgtcggtta cccctggaca accagccct 60

atctcttgca agtcaaggta gagcctctta tatagtaatg gaaaaaccta tttgaattgg	120
tttattacaga agccaggcca gcctccacag cgcctaatct atctgggtgc taatcgggac	180
tctggagtcc ctgacaggtt cagtggcagt ggatcaggaa cagatttac actgaaaatc	240
agcagagtgg aggctgagga tggggat tattactgcg tgcaaggtac acatttcct	300
cagacgttcg gtggaggcac caaggtggaa atcaaa	336

<210> 4  
 <211> 112  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> LIGHT CHAIN of HZV11

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly			
1	5	10	15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser			
20	25	30	
Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Lys Pro Gly Gln Pro			
35	40	45	
Pro Gln Arg Leu Ile Tyr Leu Val Ser Asn Arg Asp Ser Gly Val Pro			
50	55	60	
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile			
65	70	75	80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly			
85	90	95	
Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys			
100	105	110	

<210> 5  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu94

<400> 5  
gagaattcac attcacatg tacttg

26

<210> 6  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR43-1

<400> 6  
ctgctgcagc tggacctgac tctggacacc att

33

<210> 7  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR44-1

<400> 7  
caggccagc tgcagcagtc tggacctgaa ctg

33

<210> 8  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR45-1

<400> 8  
tggcccttg gtggaggctg cagagacagt gac

33

<210> 9  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR46-1

<400> 9  
gcctccacca agggcccatc ggtcttcccc ctg

33

<210> 10  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR31

<400> 10  
cagcggccgc tcatttaccc gggacag

28

<210> 11  
<211> 26  
<212> DNA

<213> Artificial Sequence

<220>

<223> Ryu86

<400> 11

caaagcttgg aagcaagatg gattca

26

<210> 12

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR48

<400> 12

caagatatcc ccacaggatc cagatac

27

<210> 13

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR49

<400> 13

tgtgggata tcttgatgac ccaaact

27

<210> 14

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> HUR50

<400> 14  
cacagatctt ttgatttcca gcttggt

27

<210> 15  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HUR51

<400> 15  
atcaaaaagat ctgtggctgc accatct

27

<210> 16  
<211> 58  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CK1D

<400> 16  
gcgccgtcta gaattaacac tctccctgt tgaagcttt tgtgacgggc gaactcag

58

<210> 17  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM001N

<400> 17  
ccggaaattca cattcacgat gtacttg 27

<210> 18  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM003

<400> 18  
tgcccccaga ggtgct 16

<210> 19  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> ym257

<400> 19  
acgcattcag tgcttcttgg atgaactggg tga 33

<210> 20  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM258

<400> 20  
atccaaagaag cactgaatgc gtagccagaa g 31

<210> 21  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM004

<400> 21  
ccaattcaaaa gcgggttttc cattactata taagaggc

38

<210> 22  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> YM009

<400> 22  
gcagccaccc tacgtttgat ttccaccctg gt

32

<210> 23  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 166

<400> 23  
ggatttgtct gcagtcattg tggctctgcc ctggaaactt

39

<210> 24  
<211> 27

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Hur 37

<400> 24  
gacaaatcca cgagcacagt ctacatg

27

<210> 25  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 118

<400> 25  
ctgtggaggc tggcctggct tctgtataaa cca

33

<210> 26  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ryu 119

<400> 26  
ggccagcctc cacagctcct aatctatctg

30

<210> 27  
<211> 345  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> KR127VH

<400> 27  
caggccagc tgcagcagtc tggacctgaa ctggtaagc ctggggcctc agtgaagatt 60  
tcctgcaaag cttctggcta cgcatcagt agttcttggta tgaactgggt gaagcagagg 120  
cctggacagg gtcttgagtg gattggacgg atttatcctg gagatggaga tactaactac 180  
aatgggaagt tcaagggcaa ggccacactg actgcagaca aatccctccag cacagcctac 240  
atgcagctca gcagcctgac ctctgtggac tctgcggctt atttcgtgc aagagagttac 300  
gacgaggctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 28  
<211> 115  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> KR127VH

<400> 28  
Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
1 5 10 15  
Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ala Phe Ser Ser Ser  
20 25 30  
Trp Met Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45  
Gly Arg Ile Tyr Pro Gly Asp Gly Asp Thr Asn Tyr Asn Gly Lys Phe  
50 55 60  
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Val Asp Ser Ala Val Tyr Phe Cys  
85 90 95

Ala Arg Glu Tyr Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr  
100 105 110

Val Ser Ala  
115

<210> 29  
<211> 336  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> KR127VK

<400> 29  
gatatcttga tgacccaaac tccacttatt ttgtcggtta ccattggaca accagcctct 60  
atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaaccta tttaatgg 120  
tttattacaga ggccaggcca gtctccaaag cgccataatct atctgggtgc taaactggac 180  
tctggagtcc ctgacagggtt cactggcagt ggatcaggaa cagatttac actgaaaatc 240  
atcagagttgg aggctgagga ttggggagtt tattactgct tgcaaggtac acattttcct 300  
cagacgttgc gtggaggcac caagctggaa atcaaa 336

<210> 30  
<211> 112  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> KR127VK

<400> 30  
 Asp Ile Leu Met Thr Gln Thr Pro Leu Ile Leu Ser Val Thr Ile Gly  
 1 5 10 15  
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
 20 25 30  
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser  
 35 40 45  
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80  
 Ile Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Val Gln Gly  
 85 90 95  
 Thr His Phe Pro Gln Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys  
 100 105 110

<210> 31  
 <211> 294  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> DP7

<400> 31  
 caggtgcagc tggtgcatgc tggggctgag gtgaagaagc ctggggcctc agtgaaggtt 60  
 tcctgcaagg catctggata caccctcacc agctactata tgcactgggt gcgacaggcc 120  
 cctggacaag ggcttgagtg gatggaaata atcaacccta gtggtggtag cacaagctac 180

gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gaga 294

<210> 32

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> DP7

<400> 32

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg

<210> 33

<211> 302

<212> DNA

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; DPK12

<400>	33					
gatattgtga	tgacccagac	tccactctct	ctgtccgtca	cccctggaca	gccggcctcc	60
atccctgca	agtcttagtca	gagcctcctg	catagtgtat	gaaagaccta	tttgtattgg	120
tacctgcaga	agccaggcca	gcctccacag	ctcctgatct	atgaagtttc	caaccggttc	180
tctggagtgc	cagataggtt	cagtggcagc	gggtcaggga	cagatttcac	actgaaaatc	240
agccgggtgg	aggctgagga	tgttggggtt	tattactgca	tgcaaagtat	acagcttcct	300
cc						302

&lt;210&gt; 34

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; DPK12

<400>	34															
Asp	Ile	Val	Met	Thr	Gln	Thr	Pro	Leu	Ser	Leu	Ser	Val	Thr	Pro	Gly	
1																15
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	His	Ser	
																30
Asp	Gly	Lys	Thr	Tyr	Leu	Tyr	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Pro	
																45
Pro	Gln	Leu	Leu	Ile	Tyr	Glu	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	
																50
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	
																65
																70
																75
																80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser  
85 90 95

Ile Gln Leu Pro  
100

<210> 35  
<211> 345  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HEAVY CHAIN of HZ1

<400> 35  
caggtccagc tggcgcagtc tggagctgaa gtggtaaagc ctggggcctc agtgaaggtt 60  
tcctgcaaaag cttctggcta cgcattcagt agttcttggaa tgaactgggt gcgacaggcc 120  
cctggacagg gtcttgagtg gattggacgg atttatacctg gagatggaga tactaactac 180  
gcacagaagt tccagggcaa ggccacactg actgcagaca aatccacgag cacagcctac 240  
atggagctca gcagcctgag atctgaggac acggcggtct atttctgtgc aagagagtac 300  
gacgaggctt actggggcca aggaactctg gtcactgtct ctica 345

<210> 36  
<211> 115  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> HEAVY CHAIN of HZ1

<400> 36  
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Val Lys Pro Gly Ala

1	5	10	15
Ser Val Lys Val Ser Cys Lys Ala Ser	Gly Tyr Ala Phe Ser Ser Ser		
20	25	30	
Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile			
35	40	45	
Gly Arg Ile Tyr Pro Gly Asp Gly Ser Thr Ser Tyr Ala Gln Lys Phe			
50	55	60	
Gln Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr			
65	70	75	80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys			
85	90	95	
Ala Arg Glu Tyr Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr			
100	105	110	
Val Ser Ser			
115			

<210> 37  
<211> 336  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> LIGHT CHAIN of HZI

<400> 37·  
gatatcttga tgacccaaac tccactttct ttgtcggtt a cccctggaca accagcctct 60  
atctcttgca agtcaagtca gagccttta tata gtaatg gaaaaaccta tttaatttgg 120  
ttattacaga agccaggcca gtctccaaag cgcctaatct atctggtgtc taaactggac 180  
tctggagttcc ctgacaggtt cagtgccagt ggatcaggaa cagattttac actgaaaatc 240

agcagagtgg aggctgagga tttggagtt tattactgct tgcaaggtac acatttcct 300

cagacgttcg gtggaggcac caaggtggaa atcaaa 336

<210> 38

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> LIGHT CHAIN of HZI

<400> 38

Asp Ile Leu Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly  
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
20 25 30

Asn Gly Lys Thr Tyr Leu Tyr Trp Leu Leu Gln Lys Pro Gly Gln Ser  
35 40 45

Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly  
85 90 95

Thr His Phe Pro Gln Thr Phe Gly Gly Thr Lys Val Glu Ile Lys  
100 105 110